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CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC
1420 FIFTH AVENUE
SUITE 2800
SEATTLE, WA 98101-2347

EXAMINER
VU, TUAN A

ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 06/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/544,512	LUPU ET AL.	
	Examiner	Art Unit	
	Tuan A Vu	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is responsive to the Applicant's response filed April 11, 2003.

Claims 1-18 are pending in the office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> Note: 35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

3. Claims 1, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagel, USPN: 6,071,317 (hereinafter Nagel).

As per claim 1, Nagel discloses a method for patching a computer application program comprising determining whether or not the computer application program is compatible with a computer operating system executing the application (e.g. col. 13, line 63 to col. 13, line 10; col. 14, lines 36-43; col. 15, lines 34-53; *in accordance with the operating system* - col. 21, lines 44-59 – Note: analyzing operating system and resources/data thereof (e.g. registry) linking to the program object is equivalent to determining if application is compatible to be executed in such O.S. environment); and if the computer application program is determined to be incompatible

with the computer operating system, starting a patching or trap code process, i.e. debugger, operating on the application program (e.g. col. 15, line 66 to col. 16, line 18 – Note: instituting patch or trap codes is equivalent to running a debugger).

As per claim 13, this is the system version of claim 1 above, hence incorporates the rejection thereof for the same obvious reasons.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4, 7, 9,15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagel, USPN: 6,071,317.

As per claim 3, Nagel further discloses

determining if at least one identifying attribute of a plurality of identifying attributes of the started application does not match at least one identifying attribute of a plurality of identifying attributes of compatible applications (e.g. *date references* -- col. 15, lines 34-65; *pattern of date usage, does not match* - col. 22, line 53 to col. 23, line 28 – Note: 2YK compliant analysis is equivalent to identifying attributes of incompatible operating system, i.e. not 2YK compliant); and

if at least one of the identifying attributes matches, determining if the running application is incompatible, otherwise it is compatible (e.g. col. 23, lines 30-40).

But Nagel does not specify matching identifying attributes against attributes of incompatible applications. But in view of the disclosed matching against known patterns by Nagel, one of ordinary skill in the art would recognize that the techniques by Nagel would have achieved the same results as the claimed limitation suggests; and would also be motivated to modify such pattern matching by comparing such attributes against known incompatible application attributes in case the availability of such incompatible applications is handy for use without additional resources spending because it would have been obvious that providing not only the known compliant but also the known non-compliant patterns, i.e. incompatible attributes as claimed, would make the incompatibility checking even more adequate.

As per claim 4, Nagel further discloses storing identifying attributes of compatible applications (e.g. *separate table* – col., 15, lines 56-65); and retrieving one of such stored identifying attributes for determining one of the attributes of the started application matches the stored attributes of the compatible applications (e.g. *library of modification, pattern of date* -- col. 22, line 53 to col. 23, line 28).

But Nagel does not specify storing and using attributes of incompatible applications for the matching against attributes of the target application; but this limitation would have been obvious by virtue of the rationale set forth in claim 3 above.

As per claim 7, this is the computer-readable medium version of claim 1 above, hence incorporates the rejection thereof for the same obvious reasons; and further includes a computer-readable medium to embody the debugging method, which Nagel does not disclose. Official notice is taken that the use of a computer-readable medium to store a computer product program code was a well-known concept at the time of the invention. Hence, it would have been obvious

for one of ordinary skill in the art at the time the invention was made to use a computer-readable medium to store the computer product program code as disclosed by Nagel because this would facilitate the distribution/sale of such computer product and the use of such product by a broader population of computer users.

As per claim 9, this is the computer-readable medium version of claim 3, hence incorporates the corresponding rejections set forth in therein for the same reasons.

As per claim 15, in reference to claim 13, this is the computer system version of claim 3, hence incorporates the corresponding rejections set forth in therein for the same reasons.

As per claim 16, this is the system version of claim 4, hence incorporates the corresponding rejections set forth in therein for the same reasons.

6. Claims 2, 8, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagel, USPN: 6,071,317, as applied to claims 1, 7, 13, in view of Preisler et al., USPN: 5,675,803 (hereinafter Preisler).

As per claim 2, Nagel discloses breakpoints or stopping points for the debugger to apply patches (e.g. col. 16, lines 32-45; *I/O points* -- col. 24, line 19 to col. 25, line 12 – Note: a breakpoint is set when a request to jump to an outside trap code is initiated); and executing the application in a debugger (Figure illustrating Example 1, col.22; col. 22, line 33 to col.17, line 17).

But Nagel does not specify setting of breakpoints so to monitor the application via the debugger to determine if at least one such breakpoint has been reached; and applying the patching thereupon; and executing the steps of running the application, monitoring, patching until the application has finished. However, Nagel during executing a debugger on the

application program discloses points at which modified codes is to be loaded so to use a run-time patcher via a *Supervisor Call SVC* (e.g. col. 23, lines 58 to col. 24, lines 27) to apply the patch fix. Preisler, in a method to run a "Fix-and-Continue' type of debug to patch target application while checking for run-time errors analogous to the dynamic application patching process by Nagel, discloses setting and monitoring for patch sites, i.e. breakpoints while running the application (*patch sites* -- col. 61-65), and applying the patching process upon such breakpoints (*patch site 20→ Load Instruction*, Fig. 3) and re-executing the steps of monitoring and patching until the application has finished (steps 110, 130, 140, 160 - Fig. 2; col. 6, lines 1-64). It would have been obvious for one of ordinary skill in the art at the time the invention was made to arrange Nagel's debugging process so that pre-defined breakpoints so suggested by Preisler are inserted in the process of using the Supervisor Call (*SVC*) as taught by Nagel, and monitor for such breakpoints during the execution of the application because this would further enhance control over the dynamic state of change of the application program and thereby assert more correctness checking using pre-defined points at which closer data recording or trap code as mentioned by Nagel could help debug or apply fix to the application in a more controllable and predictable way.

As per claim 8, this is the computer-readable medium version of claim 2; hence incorporates the corresponding rejection set forth therein for the same reasons.

As per claim 10, this is the computer-readable medium version of claim 4, hence incorporates the corresponding rejections set forth in therein for the same reasons.

As per claim 14, this is the system version of claim 2, hence incorporates the corresponding rejections set forth in therein for the same reasons.

7. Claims 5-6, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagel, USPN: 6,071,317, and Preisler et al., USPN: 5,675,803, as applied to claims 2, 8, in view of Boxall et al., USPN: 6,263,456 (hereinafter Boxall).

As per claim 5, Nagel in combination with Preisler discloses executing a debugger containing a set or list of breakpoints, each breakpoint having a set of instructions for patching the application (see claim 2); the debugger setting a set breakpoints within the application (see claim 2).

But Nagel/Preisler in combination fail to disclose that the debugger is a dynamic linked library nor do Nagel/Preisler disclose accessing the list of breakpoints from such debugger DLL to set breakpoints. However, Preisler discloses setting of patch points while running the debugger (*patch sites* -- cols. 61-65) and Nagel discloses stopping points for the debugger to apply patches (e.g. col. 16, lines 32-45; *I/O points* -- col. 24, line 19 to col. 25, line 12), hence suggested the teaching as to accessing the list of breakpoints from such debugger. Moreover, Boxall, in a system using debug code insertion to enable the debugger engine to effect the debugging of a target application analogous to the patching of codes upon breakpoints as taught by the combination Nagel/Preisler, discloses the use of a DLL kicker called *debug.dll* to evoke the starting and exiting points of the debugger engine (e.g. col. 6, lines 22-42). In view of the suggested applicability of dynamic linked libraries whereby Nagel shows that DLL can be compiled externally and used selectively in certain platforms while protected against dynamic modification (Nagel: col. 14, lines 12-36), it would have been obvious for one of ordinary skill in the art at the time the invention was made to create a debugger as a DLL as suggested by Boxall and apply this a form of DLL debugger to the suggested breakpoint patching techniques

of Nagel/Preisler and thereby access a list of pre-set breakpoints as suggested above by Nagel/Preisler in the intent to implement a breakpoint/patching technique in the debugger. One of ordinary skill in the art would be motivated to do so because, as suggested by Nagel, DLL is a form of executable that can be loaded in compatible platform, resistive to changes, and occupying small storage places but highly reusable because of their properties to be linked and dynamically indirectly invoked or wrapped at runtime of a given application, hence facilitate the debugging process and breakpoint presetting of Nagel/Preisler in certain operating platforms in which compliance for execution is to be respected; and conformity to such platform is what Nagel invention is all about.

As per claim 6, Nagel (with Preisler's teaching) further discloses upon reaching a breakpoint, calling the handler, or patch area instructions set (e.g. col. 23, lines 58 to col. 24, lines 27), and patching the incompatible application based on such instructions (e.g. *Object code Patcher* – col. 24, line 47 to col. 25, line 36).

As per claim 11, this is the computer-readable medium version of claim 5, hence incorporates the corresponding rejections set forth in therein for the same reasons.

As per claim 12, this is the computer-readable medium version of claim 6 above; hence incorporates the corresponding rejections set forth in therein for the same reasons.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagel, USPN: 6,071,317, and Preisler et al., USPN: 5,675,803, as applied to claim 14, in view of Boxall et al., USPN: 6,263,456 (hereinafter Boxall).

As per claim 17, this is the system version of claim 5, hence incorporates the corresponding rejections set forth in therein for the same reasons.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagel, USPN: 6,071,317, as applied to claim 15.

As per claim 18, Nagel further discloses upon reaching a breakpoint, calling the handler, or patch area instructions set (e.g. col. 23, lines 58 to col. 24, lines 27), and patching the incompatible application based on such instructions (e.g. *Object code Patcher* – col. 24, line 47 to col. 25, line 36).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat No. 6,484,309 to Nowlin, Jr. et al., disclosing converting currently running OS application into another.

11. Applicant's arguments with respect to 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 746-7239, (for formal communications intended for entry)

or: (703) 746-7240 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. , 22202. 4th Floor(Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

VAT
May 18, 2003

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100